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10/714,519	11/17/2003	Simon Charles Watt	550-480	6837

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EXAMINER	
ABEDIN, SHANTO	
ART UNIT	PAPER NUMBER
2436	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/714,519	WATT ET AL.	
	Examiner	Art Unit	
	SHANTO M. ABEDIN	2436	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-2, 4-7, 9-11, 13-25, 27-30, 32-34 and 36- 47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-2, 4-7, 9-10, 14-16, 18-19, 23-25, 27-30, 32-34 and 36- 46* is/are allowed.

6)☒ Claim(s) *11,13,17 and 20-22* is/are rejected.

7)☒ Claim(s) *47* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/21/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the communication filed on 03/11/2009.

2. Claims 1-2, 4-7, 9-11, 13-25, 27-30, 32-34 and 36- 47 are pending in the application.

3. Claims 1-2, 4-7, 9-10, 14-16, 18-19, 23-25, 27-30, 32-34 and 36- 46 are allowed.

4. Claim 47 is objected.

5. Claims 11, 13, 17 and 20-22 have been rejected.

Response to Amendments

6. The amendments to the specification filed on 03/11/2009 are entered.

Response to Arguments

7. The applicant's arguments regarding objections to claim 47 are fully considered, however, found not persuasive.

In particular, regarding the previous objections to claim 47, the applicant refers to "the decision of the Board of Patent Appeals and Interferences in Ex parte Porter, 25 USPQ2d 1144, 1147 (BOPAI 1992). In this published decision, the Board held that the drafting of claims "in a short-hand format to avoid rewriting the particulars" of an apparatus in a prior claim is a proper manner of dependent claims. The Board also held that "we do regard a claim that incorporates by reference all of the subject matter of another claim, that is, the claim is not broader in any respect, to be in compliance with the fourth paragraph of § 112." Id. As a result, claim 47 clearly further limits the claim from which it depends"

However, the examiner respectfully disagrees with the applicant because languages of claim 47 raise an issue regarding whether the dependent claim 47 includes every limitations of the independent claim 24. The examiner believes languages such as "in accordance with the method of

claim 24" are not same as performing the exact method of claim 24, or may not be further limiting the independent claim since it may not be necessary to perform all the method steps to be "in accordance with" a particular method claimed in the parent claim .

> Note, Ex parte Porter, 25 USPQ2d 1144 (Bd. Pat. App. & Inter. 1992) for situations where a method claim is considered to be properly dependent upon a parent apparatus claim and should not be objected to or rejected under 35 U.S.C. 112, fourth paragraph. See also MPEP § 608.01(n), "Infringement Test" for dependent claims. **The test for a proper dependent claim is whether the dependent claim includes every limitation of the parent claim.** The test is not whether the claims differ in scope. A proper dependent claim shall not conceivably be infringed by anything which would not also infringe the basic claim. MPEP 7.36 Objections, 37 CFR 1.75 (C)

Furthermore, unlike Ex parte Porter, 25 USPQ2d 1144 (Bd. Pat. App. & Inter. 1992) situations, independent claim 24 is drawn to a method and dependent claim 47 is drawn to an apparatus/ product. In the instant case, the test for a proper dependent claim is whether the dependent claim includes every limitation of the method recited in the parent claim.

Therefore, the previous objections to claim 47 are maintained as languages of claim 47 raise an issue regarding whether the dependent claim 47 includes every limitations of the method recited in the independent claim 24.

8. The applicant's arguments regarding 35 USC 112 second paragraph type rejections of claims 17 and 40 are fully considered, the previous 35 USC 112 second paragraph type rejections of claim 40 is withdrawn because of the amendments made to the claims. However, 35 USC 112 second paragraph type rejections of claim 17 is maintained as amendments failed to overcome the rejections (please see below for detail explanations)

9. The applicant's arguments regarding 35 USC 103(a) type rejections of claims 1-2, 4-7, 9-10, 14-16, 18-19, 23-25, 27-30, 32-34 and 36- 46 are fully considered, and found persuasive. The

previous 35 USC 103(a) type rejections of claims 1-2, 4-7, 9-10, 14-16, 18-19, 23-25, 27-30, 32-34 and 36- 46 are withdrawn because of the amendments made to the claims.

Claim Objections

10. Claims 47 is objected because of the following informalities:

Regarding claim 47, it is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

In particular, claim 47 is directed to a "computer program product", however, the independent claim 24 (on which the claim 47 is dependent on) is directed to a method. Languages of claim 47 raise an issue regarding whether the dependent claim 47 includes every limitations of the independent claim 24. The examiner believes languages such as "in accordance with the method of claim 24" are not same as performing the method of claim 24 since it is not necessary to perform all the method steps to be "in accordance with" a particular method. Therefore, claim 47 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of the method in claim 24.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 17 is rejected under 35 USC 112 second paragraph for lacking antecedent basis for the claimed limitations. Claims 17 recites the limitation "said monitor mode", however, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 11, 13 and 20-22 are rejected under 35 USC 103 (a) as being unpatentable over Christie et al (US 7165135 B1) in view of Knight (US 2003/0126520 A1) further in view of Kim et al (US 2003/0031235 A1)

Regarding claim 11, Christie et al discloses apparatus for processing data, said apparatus comprising:

a processor operable in a plurality of modes and a plurality of domains, said plurality of domains comprising a secure domain and a non-secure domain (Fig 1; related modes and domains; Col 4, starting at line 7, plurality of memory location associated with the plurality of the execution modes) said plurality of modes including:

at least one secure mode being a mode in said secure domain (Fig 1; secure modes and domains; Col 4, starting at line 7, plurality of memory location associated with the plurality of the execution modes) ; and

at least one non-secure mode being a mode in said non-secure domain (Fig 1; related modes and domains; Col 4, starting at line 7, normal mode and domain);

when said processor is executing a program in a secure mode said program has access to secure data which is not accessible when said processor is operating in a non-secure mode (Fig 1; Col 4, starting at line 65; Col 9, starting at line 62)

said processor is responsive to one or more exception conditions for triggering exception processing using an exception handler, said processor being operable to select said exception handler from among a plurality of possible exception handlers in dependence upon whether said processor is operating in said secure domain or said non-secure domain (Fig 1; Col 4, starting at line 7; Col 9, starting at line 62; exception/ interrupt handler based on whether processor/ system is operating in secure/ protected mode, or insecure/ normal modes); and control triggering of either a non-secure exception handler operating in a non-secure mode or a secure exception handler operating in a secure mode with any change of domain also being triggered when required (Fig 3; Col 4, line 29-67; Col 9, line 62- Col 10, line 67; controller , or mode capable processor to control exception handling based on modes/ domains)

Christie et al fails to disclose exception handlers in dependence upon an exception vector value associated with said exception condition and stored within an active exception vector table; and wherein said active exception vector table is one of a plurality of exception vector tables; and programmable configurations associated therewith. Christie et al further fails to disclose wherein said exception conditions includes one of more of: a secure interrupt signal exception; a mode switching software interrupt signal; a reset exception; an interrupt signal exception; a software interrupt signal; an undefined instruction exception; a prefetch abort exception; a data abort exception; and a fast interrupt signal exception.

However, Knight discloses exception handlers in dependence upon an exception vector value associated with said exception condition and stored within an active exception vector table; and wherein said active exception vector table is one of a plurality of exception vector tables (Par 0007, 0015-0019; exception vector table for exception, and exceptions having corresponding operational modes such as normal, protected/ private, and IRQ modes). Knight further discloses wherein said exception conditions includes one of more of: a secure interrupt signal exception; a mode switching software interrupt signal; a reset exception; an interrupt signal exception; a software interrupt signal; an undefined instruction exception; a pre fetch abort exception; a data abort exception; and a fast interrupt signal exception (Par 0011 to 0017).

Furthermore, Kim et al discloses programmable configurations associated therewith that control triggering of either a non-secure exception handler operating in a non-secure mode or a secure exception handler operating in a secure mode with any change of domain also being triggered when required (Par 021, 022, 055, 073; programmable configuration data/ memory for selection and switching between different modes)

Kim et al , Knight and Christie et al are analogous art because they are from the same field of endeavor of secure exception handling involving different operational/ execution modes. At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the teachings of Kim et al and Knight with Christie et al to design a method further including exception vector table and programmable configuration data in order to provide an alternative and efficient exception handling mechanism in a firmware or programmable device.

Regarding claim 13, it is rejected applying as same motivation applied rejecting claim 13, furthermore, Christie et al discloses apparatus for processing data, said apparatus comprising:

a processor operable in a plurality of modes and a plurality of domains, said plurality of domains comprising a secure domain and a non-secure domain (Fig 1; related modes and domains; Col 4, starting at line 7, plurality of memory location associated with the plurality of the execution modes) said plurality of modes including:

at least one secure mode being a mode in said secure domain (Fig 1; secure modes and domains; Col 4, starting at line 7, plurality of memory location associated with the plurality of the execution modes) ; and

at least one non-secure mode being a mode in said non-secure domain (Fig 1; related modes and domains; Col 4, starting at line 7, normal mode and domain);

when said processor is executing a program in a secure mode said program has access to secure data which is not accessible when said processor is operating in a non-secure mode (Fig 1; Col 4, starting at line 65; Col 9, starting at line 62)

said processor is responsive to one or more exception conditions for triggering exception processing using an exception handler, said processor being operable to select said exception handler from among a plurality of possible exception handlers in dependence upon whether said processor is operating in said secure domain or said non-secure domain (Fig 1; Col 4, starting at line 7; Col 9, starting at line 62; exception/ interrupt handler based on whether processor/ system is operating in secure/ protected mode, or insecure/ normal modes); and control triggering of either a non-secure exception handler operating in a non-secure mode or a secure exception handler operating in a secure mode with any change of domain also being

triggered when required (Fig 3; Col 4, line 29-67; Col 9, line 62- Col 10, line 67; controller , or mode capable processor to control exception handling based on modes/ domains), wherein said plurality of exception vector tables include a secure exception vector table selectable in said secure mode and a non-secure exception vector table selectable in said non-secure mode (Col 9, starting at line 45; interrupt vectors; Col 9, starting at line 45; exception handling logic)

Christie et al fails to disclose exception handlers in dependence upon an exception vector value associated with said exception condition and stored within an active exception vector table; and wherein said active exception vector table is one of a plurality of exception vector tables; and programmable configurations associated therewith. Christie et al further fails to disclose wherein said exception conditions includes one of more of: a secure interrupt signal exception; a mode switching software interrupt signal; a reset exception; an interrupt signal exception; a software interrupt signal; an undefined instruction exception; a prefetch abort exception; a data abort exception; and a fast interrupt signal exception.

However, Knight discloses exception handlers in dependence upon an exception vector value associated with said exception condition and stored within an active exception vector table; and wherein said active exception vector table is one of a plurality of exception vector tables (Par 0007, 0015-0019; exception vector table for exception, and exceptions having corresponding operational modes such as normal, protected/ private, and IRQ modes). Knight further discloses wherein said exception conditions includes one of more of: a secure interrupt signal exception; a mode switching software interrupt signal; a reset exception; an interrupt signal exception; a software interrupt signal; an undefined instruction exception; a pre fetch abort exception; a data abort exception; and a fast interrupt signal exception (Par 0011 to 0017).

Furthermore, Kim et al discloses programmable configurations associated therewith that control triggering of either a non-secure exception handler operating in a non-secure mode or a secure exception handler operating in a secure mode with any change of domain also being triggered when required (Par 021, 022, 055, 073; programmable configuration data/ memory for selection and switching between different modes)

Regarding claim 20, Christie et al discloses an apparatus as claimed in claim 13, wherein said secure exception vector table is writable when said processor is in a secure mode and said secure exception vector table is non-writable when said processor is in a non-secure mode (Col 3, starting at line 15; Col 9, line 62- Col 10, line 67; debug traps; interrupt vectors handling based on the modes/ domain). Furthermore, Knight discloses wherein said secure exception vector table is writable when said processor is in a secure mode and said secure exception vector table is non-writable when said processor is in a non-secure mode (Par 0007, 0015-0019; access to the exception vector table according to the operational modes such as normal, protected/ private, and IRQ modes).

Regarding claim 21, Christie et al discloses an apparatus as claimed in claim 13, wherein a secure exception handler that is part of a secure operating system is used said secure mode (Fig 3; Col 4, line 29-67; Col 9, line 62- Col 10, line 67; exception handling in secure modes/ domains)

Regarding claim 22, Christie et al discloses an apparatus as claimed in claims 13, wherein a non-secure exception handler that is part of a non-secure operating system is used

said non-secure mode (Fig 3; Col 9, line 62- Col 10, line 67; exception handling in non-secure modes/ domains)

Allowable Subject Matter

13. Claims 1-2, 4-7, 9-10, 14-16, 18-19, 23-25, 27-30, 32-34 and 36- 46 are allowed.

14. Claims 17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. Claim 47 would be allowable if rewritten to overcome the objections to the claim, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

16. Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may be applied as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this action is set to expire in 3 (Three) months and 0 (Zero) days from the mailing date of this letter. Failure to respond within the period for response will result in ABANDOMENT of the application (see 35 U.S.C 133, M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shanto M Z Abedin whose telephone number is 571-272-3551. The examiner can normally be reached on M-F from 8:30 AM to 6:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Moazzami Nasser, can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The RightFax number for faxing directly to the examiner is 571-273-3551.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shanto M Z Abedin

Examiner, AU 2436

/Nasser G Moazzami/

Supervisory Patent Examiner, Art Unit 2436